

SCIENCE IN ARCHÆOLOGY.

Manuel de Recherches préhistoriques. Issued by the Société préhistorique de France. Pp. 332; with 205 figures and 4 plates. (Paris: Schleicher Frères, éditeurs, 1906.) Price 8 francs.

LAST year an eminent English Egyptologist published a handbook for excavators, with especial reference to Egypt, and remarked in his preface that "a complete archæological training would require a full knowledge of history and art, a fair use of languages, and a working familiarity with many sciences." The present work embraces a large number of subjects that should be familiar to the practical archæologist, especially if engaged in field-work on French soil.

The manual is issued by the Prehistoric Society of France, and has been written by several of its leading members. Taken in conjunction with the first congress of the society, held in the autumn at Périgueux, it indicates a widespread interest in the remote past as represented by flint implements, cave deposits, dolmens, and Gaulish burials. Of recent years, more and more emphasis has been laid on the need for systematic excavation as opposed to haphazard relic-hunting by amateurs; and this publication is intended, not only to assist the explorer in his search for records of the past, but also to render them accessible and self-explanatory when found. Private interest and personal feeling always stand in the way of corporate action in such investigations, but much would be gained if the advice contained in this manual were followed by the depredator, if only for his own ends. To put it on the lowest ground, relics accurately labelled and located gain enormously, not only in scientific, but also in market value; and if archæology is to justify its claim to be regarded as a science, scientific exploration must be the rule, and not the rare exception.

The chapters are all much compressed, and none can be singled out as more important than another. There are instructions for all the ordinary branches of exploration in a most compact form; but in spite of the French tradition, we venture to think that the volume would have been even more practical if published in a light but stout binding. A handbook in a paper wrapper is hardly fit for use in the field. Attention may be directed to the method of hardening and preserving skeletons and other bones by means of silicate of potash, and to the practical advantages of the process advocated for preserving iron. This metal is the scourge of museum curators, and neither the soda nor paraffin treatment has proved altogether successful. The simpler, and apparently the more satisfactory, method is to allow the metal to dry for several hours after brushing in water, and then to heat it to a dull red; if allowed to cool slowly, the object should then be rust-proof, and the surface clean and firm.

One of the most useful features of the manual is the table for computing the height of a subject from various bones of the skeleton; this method would no doubt greatly reduce the number of 7-foot skeletons

found even in this country. Another point on which emphasis is laid is the desirability of photographing dolmens, menhirs, and other antiquities of the kind precisely from the four cardinal points; picturesque views are dear to the ordinary photographer, but are of little value for purposes of comparison. On this point a caution should have been given as to the difference between the true and magnetic north, as accurate compass bearings of megalithic monuments may often prove of considerable importance.

The student of prehistoric archæology in France and elsewhere will be glad to find the various classifications of the Stone age brought together, even if no attempt is made to coordinate them. The most important are those of Mortillet, Piette, Salmon, Boule, and Rutot, and in the last mentioned occurs (as occasionally elsewhere) the irritating term "Forest Cromer bed." Among the few cases where no scale is indicated for the illustrations is that of the Pressigny nucleus (Fig. 74); the extraordinary size of these flints ought surely to have been stated. Finally, it is somewhat of a shock to the orthodox to find the following item in the glossary at the end:—" *Bulbe de percussion.*—Mot impropre (voir *Conchoïde*)."

OUR BOOK SHELF.

Smoke Abatement: a Manual for the Use of Manufacturers, Inspectors, Medical Officers of Health, Engineers, and Others. By William Nicholson. Pp. xiii+256. (London: Charles Griffin and Co., Ltd.) Price 6s. net.

THE author of this handbook is chief inspector to the Sheffield Corporation, and seems to have an extensive acquaintance with the various enactments that have been passed in this and other countries with a view to ameliorate one of the greatest nuisances of modern times, and devotes more than a third of the 250 pages the book contains to their recital. This is undoubtedly useful to those desiring to make themselves acquainted with the legal aspects of the case, but scarcely justifies the subtitle of a "practical handbook," as the author's idea of the nature of smoke is of a most delightfully rudimentary character, and his power, therefore, of prescribing remedies necessarily limited. On searching the book for a clear definition of smoke and a description of the constituents that go to build it up, we find on p. 12 the following:—"Nature of the Nuisance—Smoke consists of minute particles of carbon together with a sticky tarry matter which settles and sticks to everything it comes in contact with. It is dirt. Lord Palmerston's definition of dirt from a health point of view is 'Matter in the wrong place,' and carbon or coal in the atmosphere is matter in the wrong place."

One of the chief remedies suggested by Mr. Nicholson is that the Sanitary Institute should now deal with the question, and arrange for courses of lectures on the subjects of "Smoke and the Injury therefrom," "The Causes of Smoke," and "The Practical Prevention of Smoke," after which examinations should be held, and "certificates of competency given to all who satisfy the examiners." The result of this is foreshadowed by the author as follows:—

"If such facilities were offered, hundreds of engineers and others would avail themselves of them, and would not rest satisfied until they had procured a smoke inspector's certificate, which would become as popular and as valuable as the sanitary inspector's

certificate. Having obtained the certificate and possessing the theoretical as well as the practical knowledge, they would quickly be on the look-out for official appointments, and if there was an unwillingness on the part of the Local Authorities to appoint them, the necessary pressure to compel them to do so would be forthcoming."

If Mr. Nicholson could induce the Sanitary Institute to add a lecture on "The Nature of Smoke" to the course he prescribes, and was to attend it, he would find the information of distinct advantage in dealing with "smoke abatement."

The Preservation of Antiquities, a Handbook for Curators. Translated from the German of Dr. Friedrich Rathgen by Dr. G. A. Auden and Dr. H. A. Auden. Pp. xiv+176; with 48 figures in the text. (Cambridge: University Press, 1905.) Price 4s. 6d. net.

DR. RATHGEN states in his preface to the German edition of this little book that it is intended to stimulate curators and others interested in the preservation of antiquities to make public their experiences in this branch of archæology.

The first part deals with the changes brought about by the long-continued action of soil, moisture, and air on metals, glass, organic substances, limestone and clay; the materials of which "antiquities" are most usually composed. This is a subject about which very little is known, one of the commonest cases, the "rusting of iron," being still a subject for argument and speculation among chemists. The author, therefore, is only able, as a rule, to state the effects produced by these natural agents, and in comparatively few cases can suggestions be made as to the modes by which these effects are brought about.

In the second part, methods of cleansing recently disinterred antiquities of various kinds and of preserving them are given, and here the author is able to quote largely and usefully from his own wide experience of this work.

The translators have added to the English edition some notes of recent work and additional illustrations which are useful in elucidating various points in the text. The book should be useful not only to curators for reference, but should prove suggestive to all interested in the preservation of natural or artificial structures exposed to the action of air, soil, or moisture.

Organography of Plants. By Dr. K. Goebel. Authorised English edition by Prof. I. Bayley Balfour. Part i., pp. xvi+270. 10s. net. Part ii., pp. xiv+708. 21s. net. (Oxford: The Clarendon Press.)

THE German edition of the "Organography" has already been reviewed in NATURE (vols. lviii., p. 74, lxiii., p. 149, lxvi., p. 51), and it is unnecessary, therefore, to insist again on the importance of Prof. Goebel's book, both to botanists and to others who are interested in the development of plant life.

The Clarendon Press is to be congratulated on having secured Prof. Bayley Balfour to undertake the responsibility of preparing the English edition, and his name on the title-page carries with it the assurance that the work has been well done. Moreover, his great knowledge of plants has enabled him to give that indefinable cast of originality and interest to the translation that one so often misses in presentations of this kind.

The text is well broken up, by means of headlines and by the use of different founts of type, thus rendering the book more easy to use. The printing, and also the figures, are excellent, and there is a good index, both of illustrations and of subject-matter.

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Both the Clarendon Press and the editor have laid English-speaking botanists under obligation by the excellent production in our own language of this important work.

J. B. F.

Catalogue of the Madreporarian Corals in the British Museum (Natural History). Vol. v., The Family Poritidæ, ii., The Genus Porites, Part i., Porites of the Indo-Pacific Region. By Henry M. Bernard. Pp. vi+303+xxxv plates. (London: The Trustees of the British Museum, 1905.)

In the preparation of this important catalogue Mr. Bernard was confronted with the difficulty, experienced by nearly all naturalists who have attempted to arrange corals in specific groups, that the characters afforded by the skeletal structures only are so variable that there is no possibility of accurately defining the limits of "species." This is a difficulty which is wont to grow rather than dwindle as our knowledge of specimens of a genus increases, and Porites being a common and widely distributed coral, represented in the museum by very many specimens from numerous localities, the difficulty presented itself in a particularly exaggerated form.

No one will deny that the binomial system when applied to such a genus is unsatisfactory, and it will probably remain so unless further investigation of the anatomy of the living polyps reveals some characters of better value for purposes of classification. But the system adopted by Mr. Bernard, of abandoning the old specific names and giving the specimens a geographical label and a number, does not appear to offer a more satisfactory solution of the problem, and will not, probably, be generally approved. Unsatisfactory as they may be, many of these specific names are of some value, and all of them of historical interest. To sweep them all away at a stroke is a drastic measure which cannot be recommended, either on the ground of science or expediency.

But even if Mr. Bernard's system is disapproved, naturalists will undoubtedly agree in their tribute of thanks for the skill and patience he has displayed in building up this monumental work on the Indo-Polynesian specimens of the genus. The detailed description of the specimens in the museum will be of value to those who may, in the future, be tempted to grapple with the species question in the genus; but a real and important contribution to knowledge is to be found in the concise statements concerning the morphology of the skeleton and the affinities of the genus. The catalogue is adequately illustrated.

Microscopes and Accessories: How to Make and Use Them. Edited by Paul N. Hasluck. Pp. 160. (London: Cassell and Co., Ltd., 1905.) Price 1s. net.

WE are very doubtful whether the first portion of this book, dealing with the practical construction of a microscope by the amateur, will serve any useful purpose. Such an instrument, however well constructed, must almost inevitably fall far short of the perfection attained by the instrument makers, even if the amateur be a first-class mechanic, and efficient instruments may nowadays be picked up second-hand at ridiculously low prices. In the description of the tube, all that is said with regard to the attachment of the objective is that at the bottom (of the tube) a disc of brass is sweated on, the hole in its centre being $\frac{3}{8}$ in. diameter, and chased with a fine thread; not a word about the standard screw now adopted by all makers. The latter portion of the book, dealing with the preparation and mounting of objects, is concise and to the point, but presents nothing novel in its treatment of the subject.

R. T. HEWLETT.